

## 1 OVERVIEW

The JFx joystick is a high precision input device.

Constructed from machined aluminum and stainless steel, with sealed ball bearings for the gimbals, it is designed for applications needing a reliable, rugged solution. Motion of the gimbals is measured by a Hall Effect sensor mounted between two magnets for each axis. This contactless sensing system means that the joystick should suffer no degradation over time.

This document should be read in full prior to making any connections.

## 2 REQUIREMENTS

In order to use the JFx joystick you must also have available a suitable supply voltage and some way of measuring the output voltages. Typically the JFx is used with a CerealBox™. You will need:

- *Soldering iron to make the DB-15 connector*
- *DB-15 (F) connector to connect to the JFx*
- *5 vDC regulated power supply*

## 3 MAKING THE CONNECTIONS

The DB-15 should be wired according to attached drawing BG-14-xxx. This shows which pins carry which signal. Note that pins 13 and 14 on a DB-15 and pins 24 and 25 on a DB-36 carry power to the joystick.

## 4 CALIBRATION

The joysticks are tested and calibrated prior to shipping. Each axis has a bias trim pot, a positive gain trim pot and a negative gain trim pot. These trim pots are located as shown in the figure. The joysticks are calibrated such that full swing is within 1% of maximum or minimum value, and that the center value is +/- 1%. Typically the joysticks are more precise.

Note that there is some unavoidable “slop”, but again this is within 1%.

Should you need to adjust the trim on the joystick, the procedure is as follows. You should adjust the center trim pot such that with a 5.00 vDC input you are close to 2.50 vDC output. Then move the joystick to the left or backwards so that the output is close to 0.00 vDC. Then adjust the minimum value trim pot so that 0.00 vDC is reached just when the joystick hits the stop. Then move the joystick to the right or forward so that the output is close to 5.00 vDC. Adjust the maximum value trim pot so that 5.00 vDC is reached just as the joystick hits the stop. You may then need to re-adjust several

times because the circuit is non-linear and changing the maximum trim pot may have an effect on the center and or the minimum value.

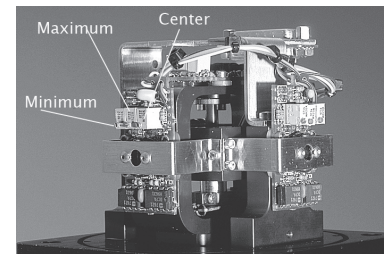
## 5 SPECIFICATIONS

Supply Voltage:	5 vDC
Output Voltage:	0 - 5 vDC
Current Draw:	50 mA at 5 vDC
Output Connector:	DB-15 or DB-26 (M)
Motion Sensor:	Hall Effect

## 6 SAFETY

The JFx joystick is a rugged and reliable piece of high precision equipment. If it is to be used in an application where safety is an issue, then care must be taken by the end user to provide a backup system in case of failure of the joystick. Since failure may occur and induce an output voltage anywhere in the range, these modes should be anticipated.

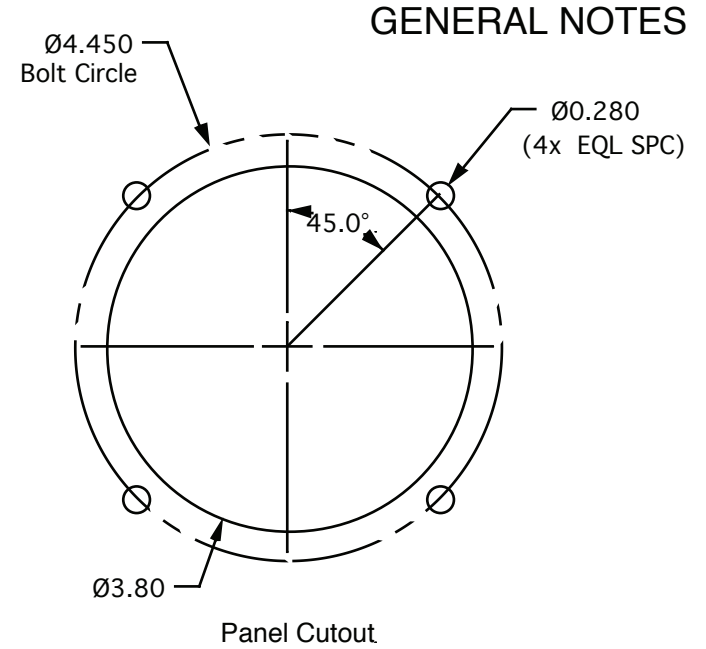
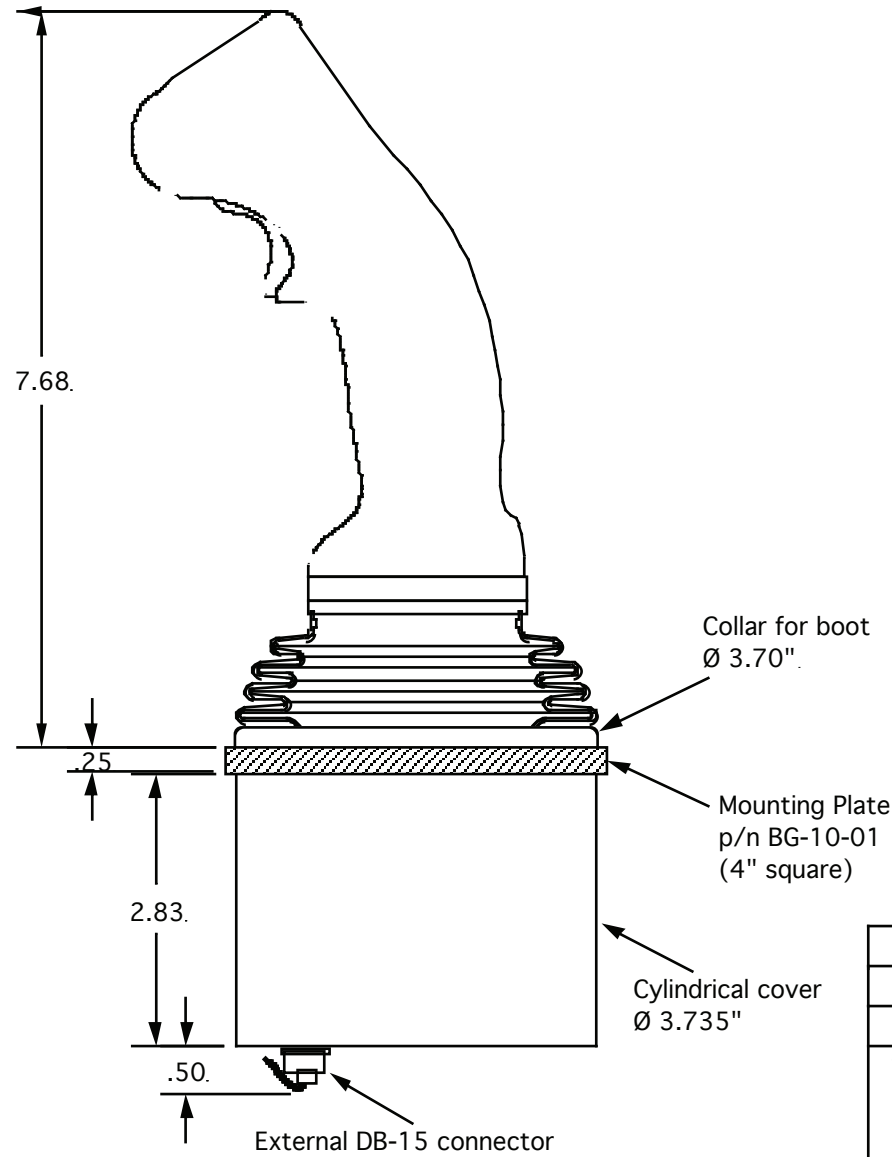
*⚡ It is the user's responsibility to provide appropriate fail-safe backup systems when the JFx joystick is used in a potentially hazardous environment.*



*Location of trim potentiometers*

03-Feb-1997  
13:45

REVISIONS		
REV	DESCRIPTION	DATE



ITEM	QUANTITY	NAME	DESCRIPTION	SIZE
PARTS LIST AND DESCRIPTION				
TOLERANCES		<b>BG Systems, Inc.</b> 3272 Bryant Street, Palo Alto, CA 94306 (650) 858-2628  <b>JFx Joystick Installation</b>		
.X	.015			
.xx	.01			
.XXX	.005			
UNLESS OTHERWISE SPECIFIED				
DRAWN	J.A. GREEN	FCSM NO	DWG NO BG 10-35	REV
ISSUED	03-Feb-1997	SCALE 1/2	WEIGHT	SHEET 1

This drawing contains proprietary information of BG Systems, Inc. It shall not be copied or reproduced in any manner without the express written consent of BG Systems, Inc.